WHAT IS CLAIMED

1. A synthetic impedance driver circuit for driving a load comprising:

an input port adapted to receive an input signal to be coupled to said load;

an output port adapted to apply an output signal to said load; and

an operational amplifier having an input coupled to said input port and an output coupled to said output port, over a circuit path through which an output impedance of said driver circuit is synthesized, said circuit path being exclusive of one or more series-coupled electrical energy-dissipative elements, so that said synthesized output impedance of said driver circuit is defined essentially exclusive of series-coupled electrical energy-dissipative elements.

2. A synthetic impedance driver circuit according to claim 1, further including an output voltage feedback resistor coupled between said output port and an input of said operational amplifier circuit, and a current sensing circuit coupled between said output port and an input of said operational amplifier and being operative to feed back a current representative of output current applied to said output port, such that said synthesized output

impedance is defined in accordance with said feed back current.

3. A synthetic impedance driver circuit according to claim 2, wherein said current sensing circuit comprises a current mirror circuit.

4. A synthetic impedance driver circuit according to claim 2, further including an output coupling circuit having an input coupled to said output of said operational amplifier and level-shifted outputs, and wherein said current sensing circuit includes complementary polarity output transistor circuits, respectively coupled between said level-shifted outputs of said output coupling circuit and said output port, and complementary polarity current mirror transistor circuits respectively coupled between said complementary polarity output transistor circuits and an input of said operational amplifier.

5. A synthetic impedance driver circuit according to claim 4, wherein said output coupling circuit includes a level shifter.

6. A synthetic impedance driver circuit according to claim 5, wherein said operational amplifier has a

first polarity input to which said input signal and said output voltage feedback resistor are coupled, and a second polarity input to which a reference voltage is coupled.

7. A synthetic impedance driver circuit according to claim 6, wherein said complementary polarity current mirror circuits have a first common node coupled to said first polarity input of said operational amplifier.

8. A synthetic impedance driver circuit according to claim 7, wherein said complementary polarity output transistor circuits have a second common node coupled to said output port.

9. A synthetic impedance driver circuit according to claim 2, wherein said operational amplifier has a first polarity input to which said input signal and said output voltage feedback resistor are coupled, and a second polarity input to which a reference voltage is coupled.

10. A synthetic impedance driver circuit according to claim 2, wherein said operational amplifier circuit has a first polarity input to which said input signal is coupled, and a second polarity input to which said output

voltage feedback resistor and said feed back current are coupled.

11. A synthetic impedance driver circuit comprising an operational amplifier having a first input coupled to receive an input signal, a second input coupled to a reference voltage, and a voltage feedback resistor coupled between an output port and an input of said amplifier, an output current-dependent current source, which is operative to supply a prescribed fraction k of output current at said output port over a current feedback path to an input of said operational amplifier, such that the output impedance of said synthetic impedance driver circuit is synthesized in terms of the mirror current ratio k and the value of said output voltage feedback resistor.

12. A synthetic impedance driver circuit according to claim 11, wherein said operational amplifier has an output coupled to said output port over a circuit path through which said output impedance of said driver circuit is synthesized, said circuit path being exclusive of one or more series-coupled electrical energy-dissipative elements, so that said synthesized output impedance of said driver circuit is defined exclusive of series-coupled electrical energy-dissipative elements.

13. A synthetic impedance driver circuit according to claim 12, wherein said operational amplifier is coupled by way of an output coupling circuit to said output port, said output coupling circuit including a level shifter having a first and second level-shifted outputs, respectively coupled to first and second complementary polarity output transistors coupled to said output port, and associated complementary current mirror transistors having a current mirror node supplying said prescribed fraction k of output current at said output port to an input of said operational amplifier.

14. A synthetic impedance driver circuit according to claim 12, wherein an input signal is coupled to a non-inverting input of said operational amplifier.

15. A synthetic impedance driver circuit according to claim 13, wherein a first auxiliary resistor is coupled in a mirrored current feedback path to an input of said operational amplifier, and wherein a current mirror node is coupled through a second auxiliary resistor to a reference voltage applied to a non-inverting input of said amplifier.

16. A synthetic impedance driver circuit according to claim 13, further including a feedback operational amplifier having inputs respectively coupled to said output port and to said current mirror node, and an output coupled as a control input to a feedback transistor having its current flow path coupled to power supply terminals for said driver circuit through a first auxiliary current mirror circuit and a first auxiliary bias current source, said first auxiliary bias current source maintaining said feedback transistor in a conductive state for both polarities of output current, and a second auxiliary current mirror circuit coupled to said current mirror circuit and to the inverting input of said driver amplifier circuit, to which a second auxiliary bias current source is coupled.

17. A method of applying a signal to an output port adapted to be coupled to a load, comprising the steps of:

(a) coupling said signal to an input of an operational amplifier;

(b) coupling an output of said operational amplifier to said output port by way of a circuit path that is exclusive of series-coupled electrical energy-dissipating elements; and

(c) synthesizing an output impedance of said operational amplifier in accordance with properties of

said circuit path that is essentially exclusive of series-coupled electrical energy-dissipative elements.

18. A method according to claim 17, wherein said operational amplifier has an output voltage feedback resistor coupled between said output port and an input of said operational amplifier, and a current sensing circuit coupled between said output port and an input of said operational amplifier and being operative to feed back a current representative of output current applied to said output port, such that said synthesized output impedance is defined in accordance with said feed back current.

19. A method according to claim 18, wherein said current sensing circuit comprises a current mirror circuit.

20. A method according to claim 19, wherein step (c) includes coupling respective inputs of a feedback operational amplifier to said output port and to said current mirror circuit, and an output coupled as a control input to a feedback transistor having its current flow path coupled to power supply terminals for said operational amplifier through a first auxiliary current mirror circuit and a first auxiliary bias current source, said first auxiliary bias current source maintaining said

feedback transistor in a conductive state for both polarities of output current, and a second auxiliary current mirror circuit coupled to said current mirror circuit and to an inverting input of said operational amplifier, to which a second auxiliary bias current source is coupled.